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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/525,142	03/14/00	TAMAYO	P 2825.1014-00

HM22/0507

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EXAMINER

ZHOU, S

ART UNIT

PAPER NUMBER

1631

DATE MAILED:

05/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/525,142

Applicant(s)

TAMAYO ET AL.

Examiner

Shubo "Joe" Zhou

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 19-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claims 1-61 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

### DETAILED ACTION

Applicants' election with traverse of Group I (claims 1-18) in Paper No. 7, filed 4/9/01, is acknowledged. In response to the Examiner's restriction election requirement mailed 2/8/01, applicants traverse that Group III (claims 35-51) and Group IV (52-57) should be examined together with Group I because they are not independent and distinct. This traverse is not found persuasive because of the following:

First of all, regarding the phrase "independent and distinct" in 35 U.S.C. §121 as brought up by applicants in their response (page 2), while 35 § U.S.C. 121 states that restriction may be required between independent and distinct inventions as delineated in MPEP 802.01, this language was intended to codify the existing practice of division at the time of the 1952 Patent Act which unquestionably included the division of dependent (or related) inventions. As such restriction is proper if two or more claimed inventions are either independent or distinct. see MPEP 803.

Secondly, applicants' traverse is not directed to reasons for distinctness of the Groups of inventions as set forth in the previous Office action. These reasons are set forth in page 3, bottom two paragraphs of the previous Office action. The inventions of Groups I, III and IV are distinct both physically and functionally, require different process steps, action mode and parameters, and produce different results. More importantly, these inventions have acquired a separate status in the art and are usually published separately. Thus, there is an undue search burden if they are examined together. The mere fact that the Groups are classified in the same subclass is not found persuasive

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for lack of a search burden because search of each Group would require independent considerations which would require the examiner to focus on different features and entail differently structured word searches for both patent and non-patent literature for each of the three Groups.

In summary, the traversal arguments are not found persuasive, and the restriction requirement is still deemed proper and is, therefore, made FINAL.

Claims 19-61 are withdrawn from further consideration as being drawn to non-elected inventions.

### ***Specification***

The specification is objected to because of the following:

The figures are objected to because the Brief Description of the Drawings fails to describe Figures 3A-3X which are present in the drawings.

See also the enclosed Form 948, the Notice of Draftsperson's Patent Drawing Review.

The abstract has multiple titles, which makes the abstract be composed of multiple paragraphs. See MPEP section 608.01(b).

Appropriate correction is required.

### ***Claim Rejections-35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-7, 9, 11, 13, 14-15, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite, for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11 and 13 are essentially duplicates of claim 5, and claims 14, 15, and 17 are essentially duplicates of claims 6, 7, and 9, respectively.

***Claim Rejections-35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

**(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.**

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **1-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisen et al. (IDS document: Proc. Natl. Acad. Sci. USA, December 1998, Vol. 95, pages

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14863-14868), in view of Mangiameli et al. (European J. Operational Research, September 1996, Vol. 93, pages 402-417, see Abstract) and Kohonen (IDS document: Self-Organizing Maps, Publisher: Springer, 1997).

Eisen et al. disclose methods of cluster analysis and display of genome-wide expression patterns of genes using hierarchical clustering, which methods comprise the steps of receiving gene expression values of the datapoints, clustering the datapoints, and providing output display indicating the clusters of the datapoints (see page 14863, ABSTRACT, and page 14864, MATERIALS AND METHODS), wherein the gene expression values are obtained from a gene that is subjected to at least one condition, such as diauxic shift, temperature and reducing shocks (page 14864, left column); the step of receiving includes receiving gene expression values of datasets across multiple genes for a condition, such as datasets of 9800 genes from primary human fibroblasts stimulated with serum following serum starvation (page 14864, left column, first paragraph); and the step of providing an output includes at least one representative datapoint from each cluster (see Figure 1 of page 14865, Figure 2 of page 14866). The methods also comprise normalizing the gene expression values because "all measurements are relative to time 0" (see page 14865, Figure 1 legend) which is interpreted as normalization, filtering out any datapoints that exhibit insignificant changes in the gene expression value because "genes were selected for this analysis if their expression level deviated from time 0 by at least a factor of 3 in at least 2 times points" (page 14865, Figure 1 legend), and rescaling the gene expression values

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because "all ratio values are log transformed (base 2 for simplicity) to treat inductions or repressions of identical magnitude (page 14864, left column, second paragraph).

While Eisen et al. do not disclose clustering using self organizing map, they do motivate/suggest experimenting with alternative or better clustering algorithms including supervised clustering methods (page 14867, right column, first paragraph).

Mangiameli et al. applied self organizing maps and seven hierarchical methods to 252 messy data sets with real-world data imperfections such as dispersion, irrelevant variables, outliers, and nonuniform densities and found that self organizing maps is significantly superior in both robustness and accuracy to other clustering methods (see Abstract), thus motivating using self organizing maps in place of hierarchical clustering analysis . Kohonen, as the inventor of self organizing maps, teaches every aspect of self organizing maps including mathematical preliminaries, justification of neural modeling, variants of self organizing maps, learning vector quantization, the basic self organizing maps, applications, hardware for self organizing maps, and self organizing maps literature review.

Thus, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to combine the teachings of Eisen et al., Mangiameli et al. and Kohomen to make and use the instant inventions.

Enclosed please find among other things a copy of the PTO-1449 with one reference lined through because the reference does not provide a publication date. If

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applicants wish consideration of the reference, a publication date of the reference has to be provided to the Examiner.

### **Conclusion**

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242 or (703)305-3014.

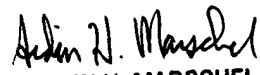
Any inquiry concerning this communication or earlier communications from the examiner should be directed to:  
Shubo "Joe" Zhou, Ph.D., whose telephone number is (703) 605-1158. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to Patent Analyst Tina Plunkett whose telephone number is 703)-305-3524, or to the Technical Center receptionist whose telephone number is (703) 308-0196.

S. "Joe" Zhou: sjz  
Patent Examiner  
January 30, 2001



  
ARDIN H. MARSCHEL  
PRIMARY EXAMINER